

# Glossary of Life-course Terms

WHO European Ministerial Conference on the  
Life-course Approach in the Context of Health 2020

21–22 October 2015  
Minsk, Belarus

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Document number: WHO/EURO:2015-6490-46256-66910

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## ACKNOWLEDGEMENTS

The WHO Regional Office for Europe thanks the members of the Scientific Advisory Committee and internal organizing committee of the European Ministerial Conference on the Life-course Approach in the Context of Health 2020. The main contributors and reviewers were:

- **experts:** Richard Alderslade, Janis Baird, Harry Burns, Cyrus Cooper, Kristina Gemzell, Philippe Granjean, Ann Hoskins, Mihály Kökény, Maksut Kulzhanov, Dmitry Pinevich, David Stuckler, Andrei Usatii, Paul Van Look;
- **representatives of WHO's partner organizations:** Nina Ferencic (UNICEF), Christoph Hamelmann (UNDP), Tamar Khomasuridze (UNFPA), John Macauley (UNDP); and
- **staff of the WHO Regional Office for Europe:** Joao Breda, Martin Donoghoe, Gauden Galea, Maria Greenblat, Manfred Huber, Lali Khotenashvili, Tina Kiaer, Hans Kluge, Hilde Kruse, Gunta Lazdane, Lucianne Licari, Enrique Loyola, Srdan Matic, Kristina Mauer-Stender, Lars Møller, Matthijs Muijen, Åsa Hanna Mari Nihlén, Francesca Racioppi, Dinesh Sethi, Elena Shevkun, Claudia Stein, Juan Tello, Agis Tsouros, Martin Willi Weber and Isabel Yordi Aguirre.

# Introduction

This glossary was prepared for the WHO European Ministerial Conference on the Life-course Approach in the Context of Health 2020 (Minsk, Belarus, 21–22 October 2015).

This bilingual (English and Russian) glossary is intended to ensure a common understanding and consistent use of the most important concepts and terms related to the Conference topic. The definitions presented are given for the purpose of this Conference. The life-course is not a new concept, but has never been discussed at a ministerial level. As this concept involves a lot of scientific terms, it is important to provide explanations of their meaning. In particular, a definition of the life-course approach itself was developed for the Conference and is proposed here for the first time.

Terms included in the glossary are limited to those that are directly connected to the subject of the Conference. For other relevant and useful terms, see other WHO glossaries such as those on strengthening health systems ([http://www.who.int/healthsystems/hss\\_glossary/en](http://www.who.int/healthsystems/hss_glossary/en)) and health promotion (<http://www.who.int/healthpromotion/about/HPG/en>).

The WHO Regional Office for Europe hopes that, apart from its relevance to the work of the Conference, this glossary will have long-lasting and wide-reaching impact, as the Conference is only the beginning of the work on applying the life-course approach to policy and programmes in the WHO European Region. Using the experience gained in developing the glossary, the Regional Office plans to expand its work on terminology. This work will become an important part of enhancing regional and intersectoral cooperation by ensuring that terminology is consistent and policy-makers, specialists and the general public in all European Member States have a common understanding of its meaning.

# Terms

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<b>Accumulation of risk</b>	One of the earliest descriptions of accumulation of risk was Riley's concept of insult accumulation, the notion that life-course exposures or insults gradually accumulate through episodes of illness and injury, adverse environmental conditions, and health damaging behaviours (1).
<b>Attachment, parental</b>	Attachment occurs when the child uses the primary caregiver as a secure base from which to explore and, when necessary, as a haven of safety and a source of comfort (2).
<b>Chain of risks</b>	A "chain of risks" model refers to a sequence of linked exposures that raise disease risk because one bad experience or exposure tends to lead to another and then another (1).
<b>Clustering of unhealthy behaviours or multiple risk behaviours</b>	More than one behaviour directly or indirectly associated with health, well-being and the healthy development of personality (3).
<b>Cocktail exposure</b>	When a person is exposed to a number of different chemical substances simultaneously, combination effects, also known as "cocktail effects", can occur. These combination effects might change the risk of adverse effects (4).
<b>Critical period</b>	Stage of development of an organism (for example, organogenesis in the fetus) that is of particular importance when the organism particularly susceptible to influences in the life-cycle if normal full development of some anatomical, physiological, metabolic or psychological structure or function is to be attained (5).
<b>Determinism</b>	The philosophical doctrine that every state of affairs, including every human event, act, and decision, is the inevitable consequence of antecedent states of affairs (6).
<b>Developmental origins of health and disease</b>	The developmental origins of health and disease paradigm (DOHaD) is a multidisciplinary field that examines how environmental factors acting during the phase of developmental plasticity interact with genotypic variation to change the capacity of the organism to cope with its environment in later life (7).
<b>Developmental toxicity</b>	Adverse effects on the developing organism (including structural abnormality, altered growth, or functional deficiency or death) resulting from exposure through conception, gestation (including organogenesis), and postnatally up to the time of sexual maturation (5).
<b>Endocrine disrupting chemicals</b>	Chemicals that may interfere with the body's endocrine system and produce adverse developmental, reproductive, neurological, and immune effects in both humans and wildlife (8).
<b>Epigenetics</b>	Epigenetics literally means "above" or "on top of" genetics. It refers to external modifications to DNA that turn genes "on" or "off." These modifications do not change the DNA sequence, but instead, they affect how cells "read" genes (9).  The term epigenetics refers to heritable changes in gene expression (active versus inactive genes) that does not involve changes to the underlying DNA sequence; a change in phenotype without a change in genotype (10).

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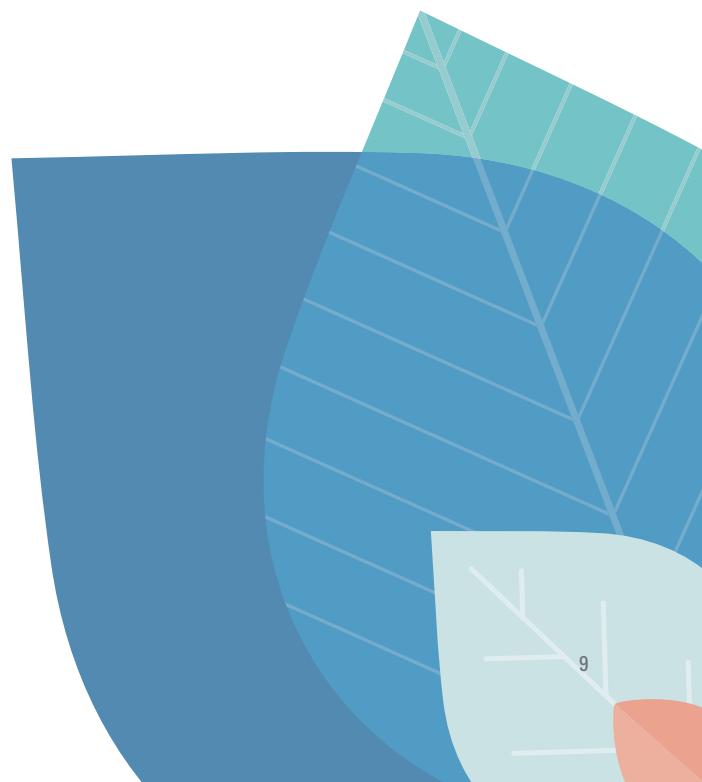
<b>Fetal imprinting or prenatal/fetal programming/Barker's hypothesis/metabolic imprinting</b>	The notion of fetal programming implies that during critical periods of prenatal growth, changes in the nutritional and hormonal milieu of the conceptus may alter the full expression of the fetal genome and physiology, leading to permanent effects on a range of physiological functions and structures. Some also use the term of fetal "imprinting". Programmed changes in structure and function may include a reduction in the number of cells, or changes in the distribution of cell types and in organ structure, or else, resetting of hormonal feedback (11).
<b>Gene expression</b>	The process by which a gene's coded information is converted into the structures present and operating in the cell (12).
<b>Health promotion</b>	Health promotion is the process of enabling people to increase control over, and to improve their health (13).
<b>Inclusive growth</b>	A concept that advances equitable opportunities for economic participants during economic growth with benefits incurred by every section of society (14).  Inclusive growth also means making the best use of all resources, young, old, men and women. Labour market, education and training programmes must all work to maximize opportunity and inclusiveness (15).
<b>Latency</b>	A period of subclinical or unapparent pathologic changes following exposure, ending with the onset of symptoms of chronic disease (16).
<b>Latent period</b>	The period between exposure to a disease-causing agent or process and the appearance of symptoms (17).
<b>Life-course</b>	A culturally defined sequence of age categories that people are normally expected to pass through as they progress from birth to death (18).  It suggests that a complex interplay of biological, behavioural, psychological, and social protective and risk factors contribute to health outcomes across the span of a person's life (19).
<b>Life-course approach</b>	An approach suggesting that the health outcomes of individuals and the community depend on the interaction of multiple protective and risk factors throughout people's lives. This approach adopts a temporal and societal perspective on the health of individuals and cohorts, and on the intergenerational determinants of health (20, 21).  The life-course approach encompasses actions that are taken early, appropriately to transitions in life and together as a whole society. This approach confers benefits to the whole population across the lifespan, as well as accruing to the next generations.
<b>Life-course epidemiology</b>	The study of long term effects on later health or disease risk of physical or social exposures during gestation, childhood, adolescence, young adulthood and later adult life (1).
<b>Life-cycle</b>	The regular, predictable series of life stages or the reproductive cycle (22).
<b>Lifespan</b>	The length of time a species is capable of living or the length of an individual's life (22).
<b>Plasticity</b>	Plasticity is the potential for change in intrinsic characteristics in response to environmental stimuli. Like life-course perspectives in other disciplines, the search for the range of plasticity and age associated changes and constraints are a fundamental quest of life-course epidemiology (1).
<b>Prenatal Exposure Delayed Effects</b>	The consequences of exposing the fetus in utero to certain factors, such as nutrition physiological phenomena; physiological stress; drugs; radiation; and other physical or chemical factors. These consequences are observed later in the offspring after birth (23).
<b>Resilience</b>	Resilience is a dynamic process of positive adaptation in the face of adversity (1).

<b>Sustainability</b>	<p>Sustainability is the ability to continue a defined behaviour indefinitely.</p> <p>For example:</p> <p>Environmental sustainability is the ability to maintain rates of renewable resource harvest, pollution creation, and non-renewable resource depletion that can be continued indefinitely.</p> <p>Economic sustainability is the ability to support a defined level of economic production indefinitely.</p> <p>Social sustainability is the ability of a social system, such as a country, to function at a defined level of social well-being indefinitely.</p> <p>A more complete definition of sustainability is thus environmental, economic, and social sustainability (24).</p>
<b>Sustainable development</b>	<p>Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:</p> <ul style="list-style-type: none"> <li>• the concept of "needs", in particular the essential needs of the world's poor, to which overriding priority should be given; and</li> <li>• the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs (25).</li> </ul>
<b>Synergism, synergistic effect, synergy (in toxicology)</b>	<p>Pharmacological or toxicological interaction in which the combined biological effect of exposure to two or more substances is greater than expected on the basis of the simple summation of the effects of each of the individual substances (5).</p>
<b>Telomere length</b>	<p>A biomarker of accumulated cellular damage and human aging. Evidence in healthy populations suggests that telomere length is impacted by a host of psychosocial and lifestyle factors, including physical activity (26).</p>
<b>Toxic stress</b>	<p>Prolonged activation of stress response systems in the absence of protective relationships.</p> <p>Toxic stress response can occur when a child experiences strong, frequent and/or prolonged adversity – such as physical or emotional abuse, chronic neglect, caregiver substance abuse or mental illness, exposure to violence, and/or the accumulated burdens of family economic hardship – without adequate adult support. This kind of prolonged activation of the stress response systems can disrupt the development of brain architecture and other organ systems, and increase the risk for stress-related disease and cognitive impairment, well into the adult years (27).</p>
<b>Tracking</b>	<p>[1] The stability of a certain risk factor over time or [2] the predictability of a measurement of a certain risk factor early in life for values of the same risk factor later in life (28) and across generations (29).</p>
<b>Transgenerational (or intergenerational) epigenetic effects</b>	<p>These are regarded as effects on the phenotype (or on patterns of gene expression) that are detected across more than one generation and that cannot be explained by Mendelian genetics (or changes to the primary DNA sequence). This includes the effects of environmental exposures on adults that alter the phenotype of the developing embryo via the placenta or the newborn via the milk (30)</p>
<b>Window of vulnerability</b>	<p>An opportunity to affect something that is at risk (31).</p>

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